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Descriptions and Records of Marine Harpacticoid Copepods from Hokkaido, III[1)2)]

With 4 Text-figures

Tatsunori ITÔ

Zoological Institute, Faculty of Science, Hokkaido University, Sapporo 060, Japan
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ABSTRACT A new species of marine harpacticoid copepod is described and illustrated on the basis of specimens collected from Akkeshi Bay. The species belonging to the Thalestridae is similar to *Parathalestris jacksoni* (T. Scott), but differs from the latter in the structures of maxillipede, leg 5 and furcal ramus. This is the first record of the genus *Parathalestris* Brady et Robertson from Japan.

The present paper deals with a new species belonging to the Thalestridae Brady et Robertson as the third report of serial taxonomic work of marine harpacticoid copepods from Hokkaido. Although the family Thalestridae contains twenty genera (see Lang, 1965), only four genera have been so far recorded from Japan; i.e., *Paradactylopodia* Lang which was reported as the name *Paradactylopusia* by Tanaka (1965), *Idomene* Phillipi, *Eudactylopus* T. Scott from north-west coast of Kyūshū (Tanaka and Hue, 1966), and *Paramenophia* Lang which was reported as the name *Dactylopusia*? *platisoma* (Thompson et T. Scott) from Shirahama (Gamo, 1969). The description of the present species means the addition of a new member to the above four genera of the family Thalestridae recorded from Japan.

Specimens were collected from Akkeshi Bay, on the Pacific coast of Hokkaido. All the specimens examined are deposited in the Zoological Institute, Faculty of Science, Hokkaido University.

Parathalestris verrucosa n. sp.

Female. Body length about 2.2 mm, rostrum and furcal setae excluded. General appearance of the body (Figs. 1–1 and 2) alike to *P. jacksoni* (T. Scott, 1898).

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2) Studies on marine harpacticoid copepods from Hokkaido, III.

Body almost semitransparent; several parts dark blue in colour, on surroundings of nauplius eye, on middle dorsal surface and near posterior edge of cephalothoracic segment, ventral surface of abdomen and basal part of each leg; abdomen somewhat reddish purple. Nauplius eye very prominent, deep red in colour. Cephalothoracic segment much longer than the succeeding four segments combined, furnished with many scattering hairs on surface (Fig. 1–6, ♂) and chitinous rim; height of the segment, in lateral view, more than two times as long as greatest height of abdomen. Each posterior dorsal edge of cephalothoracic and succeeding three free thoracic segments furnished with some corniform protuberances and short hairs. Rostrum very prominent, gently bending downward, triangular in shape, with two sensory setae near each middle lateral edge; apical end bilobated. Labrum (Fig. 1–4) with strongly chitinous ridges, spinulose on distal edge. Abdomen semicylindrical, slightly tapering posteriorly and flattened ventrally. Genital doublesomite (Fig. 1–7) subdivided by a chitinous suture ventro-laterally, with sensory setae on postero-lateral edges. Penultimate somite furnished with a prominent pseudoperculum (Fig. 1–5). Anal segment with many spinules and a short seta on

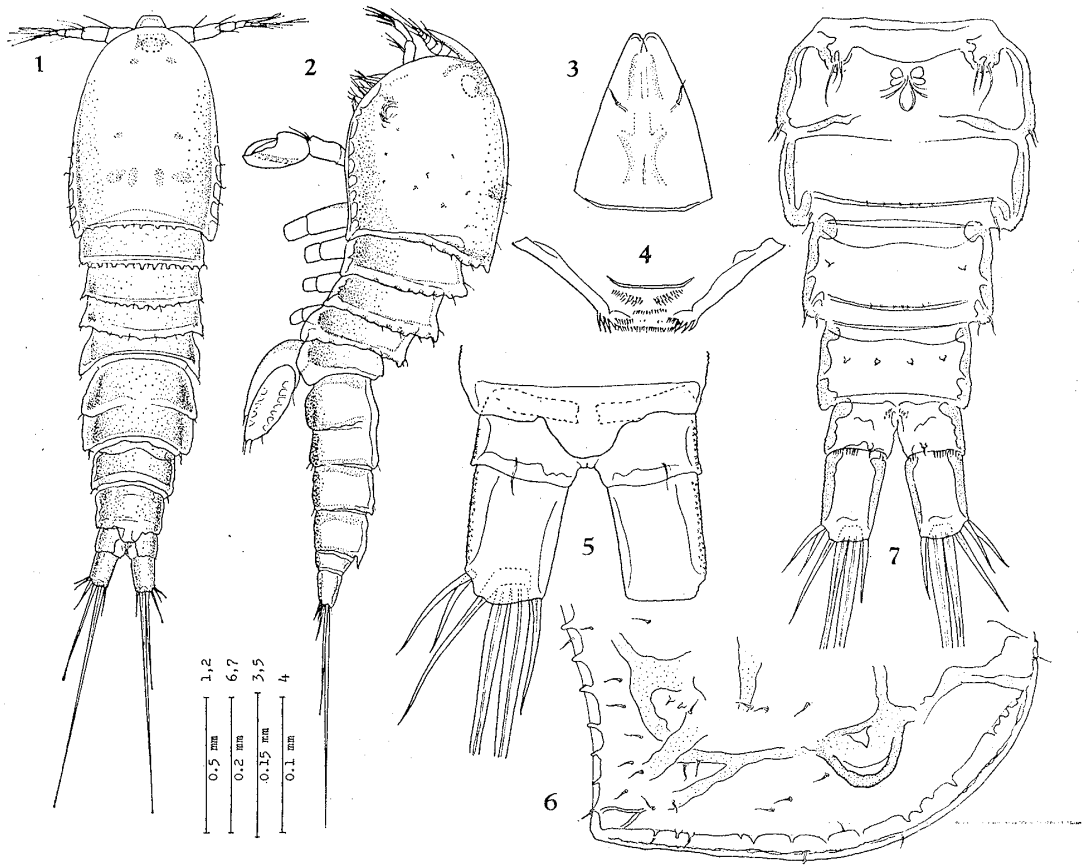

Fig. 1. *Parathalestris verrucosa* n. sp. 1. ♀, dorsal; 2. ♀, lateral; 3. ♀, rostrum; 4. ♀, labrum; 5. ♀, pseudoperculum, anal segment and furcal rami; 6. ♂, lateral carapace of cephalothoracic segment; 7. ♀, abdomen.

a small protuberance on and near each ventro-posterior edge, respectively. Furcal ramus 1.5 times as long as the greatest width, minutely tapering posteriorly, furnished with four terminal setae, innermost one shortest, as long as furca; inner principal terminal seta as long as abdomen; two setae on subterminal outer edge; dorsal seta wanting.

Antennule (Fig. 2–1) 9-segmented; first segment with some spinules along anterior edge, and only one seta on antero-distal edge; second one longest; fourth one furnished with one strong aesthetasc; apical five segments combined about as long as third and fifth ones combined, and much slighter than another segments. *Antenna* (Fig. 2–2). Coxa short. Allobasis with a short hairy seta on about two-thirds of anterior edge. Exopodite 2-segmented; first segment with two setae terminally and subterminally; second one shorter than first, with one marginal and three setae and one minute spinule on distal end. Endopodite shorter than allobasis, furnished with two spines and one slender seta accompanied by some spinules on subdistal edge; one spine and four geniculate long spines, one of which with common base with a slender seta, and one seta on distal edge; all spines somewhat hairy along subdistal edge. *Mandible* (Fig. 2–3). Praecoxa with strong bidentate pars incisiva, tridentate lacinia mobilis, three serrate spines, one short spiniform seta, some minute hair-like spinules and one prominent hairy seta along cutting edge. Coxa-basis widened distally, with an oblique spinular row near middle outer edge, and three setae distally, two of which inserted each on a small protuberance. Endopodite

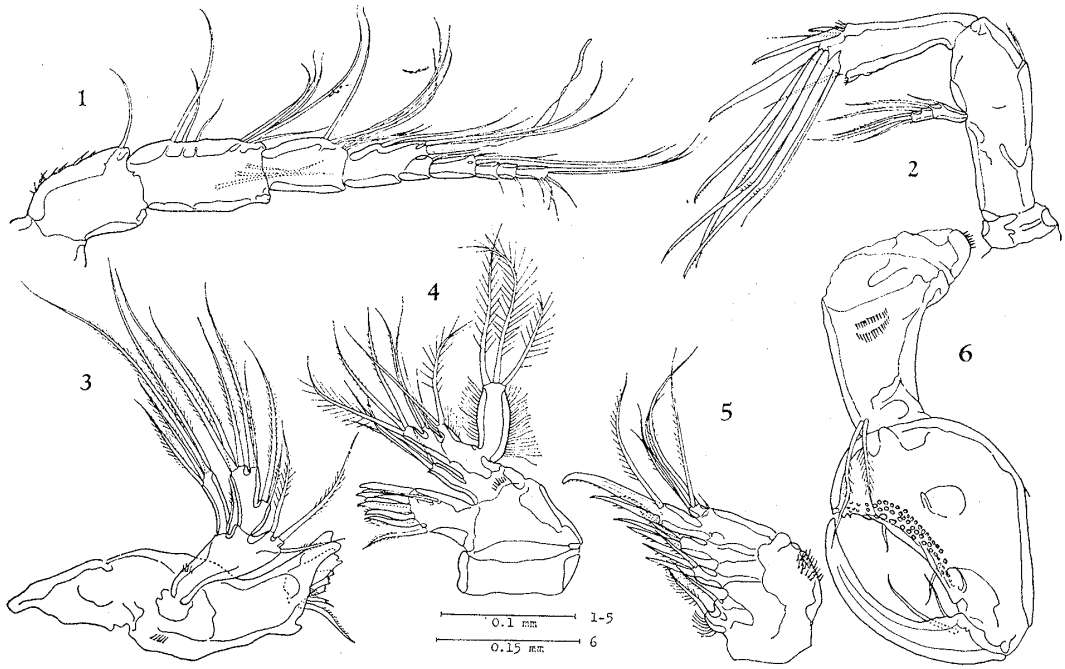

Fig. 2. *Parathalestris verrucosa* n. sp. 1. ♀, antennule; 2. ♀, antenna; 3. ♀, mandible; 4. ♀, maxillula; 5. ♀, maxilla; 6. ♀, maxillipede.

with middle and subterminal inner protuberances, each with one relatively short and one long setae on distal end; three long setae, outer two of which juxtaposed. Exopodite as long as endopodite, cylindrical, with one slender short seta on subproximal inner edge, two long juxtaposed setae on distal end, and two setae on subdistal outer corner. All setae more or less hairy. *Maxillula* (Fig. 2–4). Arthrite of praecoxa slight in appearance, with two bare setae on surface, five strong claws and two spiniform setae, dorsal one apparently hairy, along cutting edge, and one plumose seta on subdistal edge. Coxa with a transverse spinular row near proximal surface, and four slender setae on distal end of long inner cylindrical protuberance. Basis bilobuled, dorsal lobule with three setae, dorsalmost one plumose and another two spersely hairy; ventral lobule with two hairy and one bare setae. Endopodite represented by a small protuberance with two slender bare setae and one plumose seta; some hairs along outer margin. Exopodite well-developed, more than two times as long as greatest width, furnished with dense hairs along both margins, and three plumose setae on distal end, outermost one shortest, but longer than exopodite-segment. *Maxilla* (Fig. 2–5). Coxa with many spinules near outer ventral edge, and furnished with three endites, proximal endite bilobuled, with some hairs on dorsal margin, and one plumose seta on each lobule; middle and distal ones with three spiniform setae, spersely spinulose, on each distal end. Basis forming into a pectinate strong claw, with one spine and one slender bare seta on dorsal corner, and one long hairy seta on ventral corner; one minute hair near outer base of endopodite (epipodite?). Endopodite represented by a small segment, distinctly separated from basis, with five terminal setae in all, two of which remarkably longer and hairy. *Maxillipede* (Fig. 2–6). Coxa small, but remarkably widened, with some spinules along outer edge. Basis tapering distally, with two transverse spinular rows on subproximal surface, and two hairy setae on subdistal end. Endopodite strongly swollen; inner subproximal edge distinctly produced and concave distally; inner edge, represented by concavity, remarkably warty, not spinulose, and with two separate setae; distal half of outer margin almost straight; one minute spinule on middle outer edge; strong claw, more than two-thirds as long as endopodite-segment, accompanied by two bare setae near base.

Leg 1 (Fig. 3–1). Coxa about as long as greatest width, with many hair-like spinules along outer margin; inner margin convex and bare. Basis shorter than coxa, widened distally, with some slender spinules near inner margin, a transverse spinular row near distal end, and with one spiniform short inner seta and one thick outer seta accompanied by some spinules. Exopodite slender in appearance, about two times as long as coxa, 3-segmented; first segment about 1.5 times as long as greatest width, with one bare spiniform outer seta; second one about 4.3 times as long as first, tapering distally, and gently bending outwards, with one spiniform outer seta situated on about three-fifths; one hairy inner seta on subdistal edge; minute spinules along outer margin; third one about half as long as first, with two short seta on outer edge, two strong claws and one slender bare seta on distal end. En-

Fig. 3. *Parathalestris verrucosa* n. sp. 1. ♀, leg 1; 2. ♀, leg 2; 3. ♀, leg 3; 4. ♀, leg 4.

dopodite distinctly shorter than exopodite, 3-segmented; first segment about as long as second exopodite-segment, greatest width situated in a fifth; one plumose thick seta on two-fifths of outer margin; second one small, without seta; third one as long as second, with one bare seta near middle inner edge, one slender short comb-like claw on middle outer edge, strong comb-like claw, longer than half of first segment, accompanied by a slender bare seta on distal end; each outer margin of three segments with many minute spinules. *Leg 2* (Fig. 3–2). Intercoxal plate deeply concave, with some minute spinules on each outer ventral edge. Coxa with a longitudinal spinular row near outer margin; outer edge much longer than inner. Basis furnished with one thick hairy outer seta accompanied by some spinules near base; a prominent lamella, of which inner distal edge acutely sharpened, on distal end between each ramus; inner corner rounded. Exopodite 3-segmented, tapering distally; first segment about 1.5 times as long as greatest width, with dense spinules along outer margin, long hairs along inner margin, one strong outer spine and one long plumose inner seta; both outer and inner edges ending in spinous formation; second segment almost same as in first, but a little slighter and spinous formation of outer distal end more prominent; third one about as long as first, but much slighter, with three outer spines, distalmost one remarkably spinulose; one strong, outer margin spinulose and inner hairy, spiniform and one plumose terminal

setae, and two plumose long inner setae. Endopodite about as long as proximal two exopodite-segments combined, 3-segmented; first segment widened distally, with one long plumose setae near acute spinous formation; second one a little longer than first, with two inner seta, proximal one bare and much shorter, outer distal edge ending into an acute spinous formation; third one much slighter than others, with one subterminal spine near outer distal end, two terminal and two inner marginal setae; each outer margin hairy. *Leg 3* (Fig. 3–3). Intercoxal plate bare. Coxa same as in leg 1. Basis with several hairs on inner edge; outer seta slender and bare. Both rami a little slighter than in leg 2. Third exopodite-segment with three inner marginal setae. Each inner margin of second and third endopodite-segments with one and three plumose setae respectively. *Leg 4* (Fig. 3–4). All segments smaller than in leg 2. Outer seta and inner edge of basis bare. All setal and spinal structures of both rami same as in leg 2, except for inner margin of third exopodite-segment with two setae. *Leg 5* (Fig. 3–5). Basoendopodite about 1.8 times as long as greatest width, furnished with five setae along distal and subdistal margins, three of which, outermost and innermost ones excluded, each inserted on a lobule accompanied with some spinules; innermost one thick and widely separated from others; outermost one shortest and bare, and all other setae somewhat hairy; outer seta bare and inserted on a cylindrical process accompanied with some minute spinules. Exopodite elliptical, about two times as long as greatest width, and extending a little beyond distal end of basoendopodite; each outer and inner margin fringed with minute spinules and hairs, respectively, and with six bare setae, distalmost one longest. *Leg 6* represented by three bare setae. *Genital area* (Fig. 1–7) as shown in figure.

Male. Body about 2 mm in lengh. Abdomen as shown in figure (Fig. 4–5). *Antennule* (Fig. 4–2) haplocer, 9–segmented; first segment with some spinules and one seta near distal anterior edge; second one longer than first; third one small, and with one relatively short aesthetasc; fourth one slightly swollen, with one long aesthetasc; sixth one slight and gently curved; apical three ones very short; last one acute at tip and with one very slender short aesthetasc. *Antenna* and oral appendages same as in female.

Leg 2 allied to one in other members of the genus. Endopodite (Fig. 4–3) 2-segmented; first segment with one inner plumose seta; second one longer than first, a distal third remarkably reduced in width, less than about half as long as greatest width; outer corner sharpened into a spiniform process, with two long spines; one short spine on subdistal outer edge; four setae along inner margin, of which proximal one shortest and bare, and others plumose. *Leg 5* (Fig. 4–4). Both basoendopodites forming a common plate, furnished with a slender outer seta inserted on a short cylindrical process; three setae, outer one shortest and bare, middle one longest and hairy, and inner one distinctly separated from others, spiniform and hairy, on each inner expansion. Exopodite slightly tapering distally, about two times as long as greatest width, with six spiniform setae in all, one of which on inner subdistal

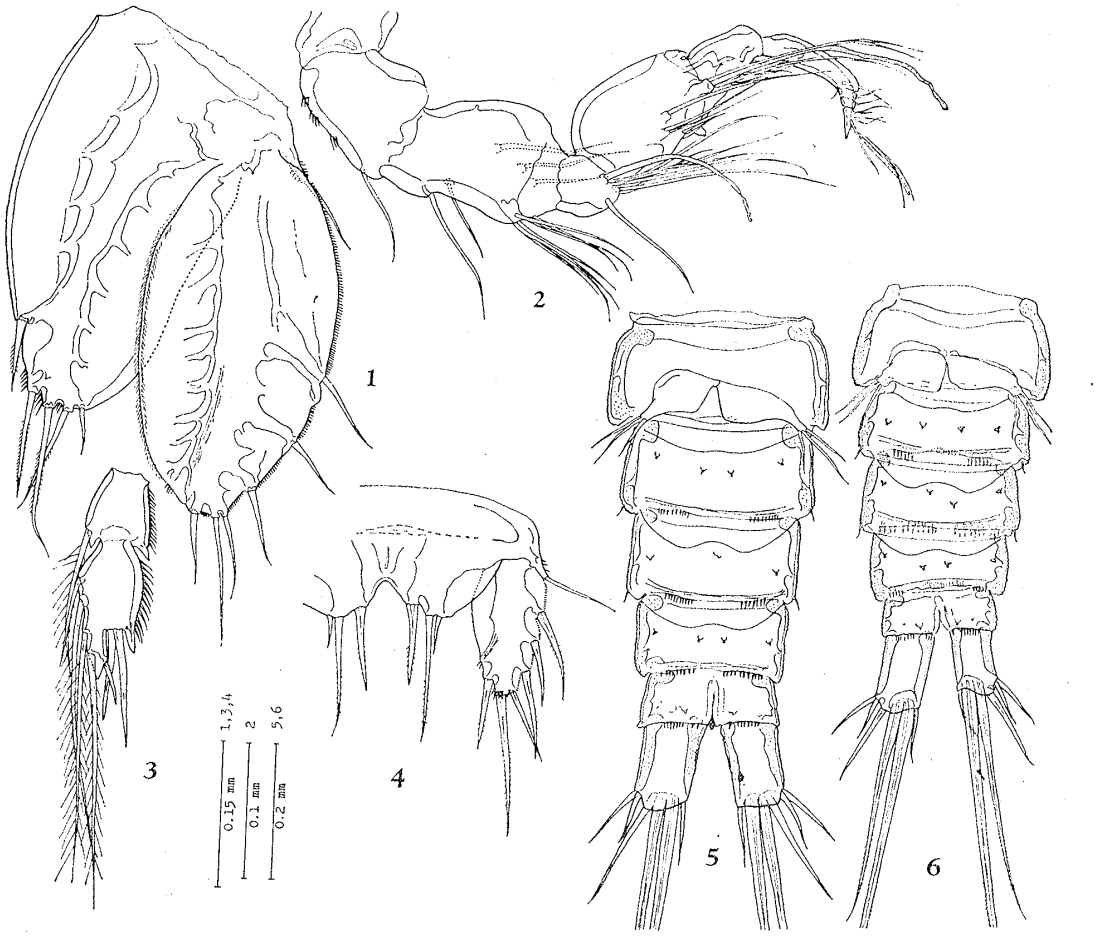

Fig. 4. *Parathalestris verrucosa* n. sp. 1. ♂, leg 5; 2. ♂, antennule; 3. ♂, endopodite of leg 2; 4. ♂, leg 5; 5. ♂, leg 6 and abdomen; 6. ♂, ditto.

corner, terminal one longest, and other four along outer margin; several spinules on distal end and inner subdistal edge; outer margin fringed with many dense minute spinules. *Leg 6* (Fig. 4–5) represented by a broad plate furnished with three bare setae on outer distal end. A pair of the legs in the present specimen asymmetrical as shown in the figure.

Variability: Another one male specimen was dissected. Body about 1.8 mm in length. Abdomen ornamented as shown in figure (Fig. 4–6). A pair of leg 6 and, moreover, furcal rami asymmetrical.

Remarks: The present species here described is most closely related to *Parathalestris jacksoni* (T. Scott, 1898) in the longer furcal rami, but easily distinguishable from the latter in the following structures; the elongated rostrum, peculiar structure of the maxillipede, the widely separated innermost seta on the basoendopodite of leg 5 of female and, further, the furcal ramus 1.5 times as long as the greatest width in the present species, while distinctly two or more times as long in

the latter, according to the original figure by T. Scott, and another figure and description based upon the specimens proposed by Sars (1905) from Norway.

Type-specimens: Syntypes; 2 ♀♀, one of which dissected, 3 ♂♂, two of which dissected, 4-VII-'68. All the specimens were collected from rinsing of algae which were dredged up off Akkeshi Marine Biological Station, about 5 m in depth, in Akkeshi Bay.

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